

What is a Plant?

Botany is the study of plants. Without plants life on earth would not exist!

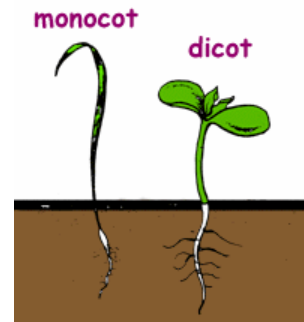
The plant kingdom is divided into many groups. There are seeded plants, which are divided into two groups: Angiosperms - flowering plants like deciduous trees, grass and flowers and Gymnosperms - plants that don't flower like pine, spruce and junipers. Non-seeded plants like mosses are in a group called bryophytes, which reproduce by spreading, and ferns belong to a group called pteridophytes, which have spores instead of seeds. We will focus on the seeded plants.

Most seeded plants have roots, stems, leaves, flowers, fruits, and seeds.

The roots provide support by anchoring the plant and absorbing water and nutrients needed for growth. They reproduce by creating seeds. Inside each seed is an embryo that will develop into a mature plant.

The outer covering of a seed is called the seed coat. Seed coats help protect the embryo from injury and also from drying out. Seed coats can be thin and soft as in beans or thick and hard as in coconut seeds. Endosperm is a temporary food supply and is packed around the embryo in the form of special leaves called cotyledons or seed leaves. These are the first parts visible when the seed germinates.

These plants are divided again based upon the number of seed leaves in the seed. Plants such as grasses are called monocots, because they have one seed leaf. Dicots are plants that have two seed leaves.



Stems carry water and nutrients taken up by the roots to the leaves, and then the food produced by the leaves moves to other parts of the plant. The cells that do this work are called the xylem cells (move water) and phloem cells (move food). Stems also provide support for the plant and allow the leaves to reach the sunlight they need to produce food.



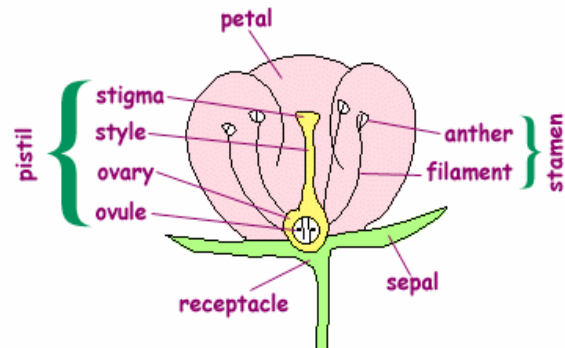
Leaves are the food making factories of green plants. Leaves come in many different shapes and sizes. Leaves can be simple, made of a single leaf blade (oak, maple), compound, in which the leaf blade is divided into separate leaflets (ash, locust), needle-like (pine, spruce), or scaly (juniper).

Leaves are made to catch light and have openings to allow water and air to come and go. The outer surface of the leaf has a waxy coating called a cuticle that protects the leaf. Veins carry water and nutrients within the leaf.

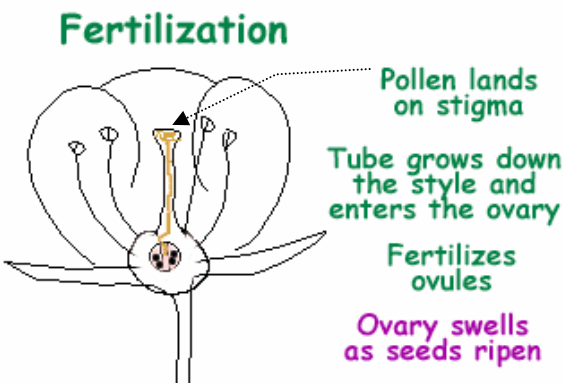
Leaves are the sites of the food making process called photosynthesis. In this process, carbon dioxide and water in the presence of chlorophyll (the green pigment) and energy from sunlight are changed into glucose (a sugar). This sugar is the source of food used by most plants.

Photosynthesis is special to green plants. It supplies food for the plant and oxygen for other forms of life.

Flowers are important in making seeds. Flowers have some basic parts. The female part is the pistil. The pistil usually is located in the center of the flower and is made up of three parts: the stigma, style, and ovary. The stigma is the sticky knob at the top of the pistil. It is attached to the long, tube-like structure called the style. The style leads to the ovary that contains the female egg cells called ovules.



The male parts are called stamens and usually surround the pistil. The stamen is made up of two parts: the anther and filament. The anther produces pollen (male sperm cells). The filament holds the anther up.



During fertilization, pollen lands on the stigma, a tube grows down the style and enters the ovary. Male sperm cells travel down the tube and join with the ovule, fertilizing it. The fertilized ovule becomes the seed, and the ovary becomes the fruit.

The tiny green leaf-like parts called sepals at the base of the flower help to protect the developing bud.

People are dependent on plants for more than just food. Many medicines are derived from plants and many plants have yet to be studied for their medicinal properties.

Clothing, tools, building materials and paper are only a few of the necessities of human existence that we rely on plants for. Even the oxygen we breathe is a product of the plants we share the earth with.

The more we learn about plants the more we see that plants truly are the key to life on earth!